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GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

| EXAMINER |
|---|
| HERNANDEZ, NELSON D |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *01 February 2008*.
2a)☐ This action is **FINAL**.          2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,2 and 4-9* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1,2 and 4-9* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *11 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☒ All   b)☐ Some * c)☐ None of:
      1.☒ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

# DETAILED ACTION

## *Response to Amendment*

1.      The Examiner acknowledges the amended claims filed on February 1, 2008.

**Claims 1, 2, 8 and 9** have been amended.  **Claim 3** has been canceled.

2.      The Examiner acknowledges the amended title filed on February 1, 2008.  The

new title is acceptable.

## *Response to Arguments*

3.      Applicant's arguments, see page 9, lines 10-23, filed on February 1, 2008, with

respect to the rejections of **claim 3** (now included in **claim 1**) under 35 USC 103 have

been fully considered and are persuasive.  Therefore, the rejection has been withdrawn.

However, upon further consideration, new ground of rejection is made in view of newly

found prior art.

*Claim Rejections - 35 USC § 103*

4.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.      **Claims 1, 2, 8 and 9 are rejected under 35 U.S.C. 103(a) as being**

**unpatentable over Yamazoe et al., EP 1014688 A2 in view of Tsuchiya et al., US**

**2002/0047911 A1.**

        **Regarding claim 1**, Yamazoe et al. discloses an image-processing device (See

fig. 1), comprising: an input device (Fig. 1: 111) that inputs video signals of an original

color image; and an image-processing unit (CPU 108) that carries out a predetermined

image altering process on luminance components of said video signals (Col. 8, ¶ 0048 –

col. 11, ¶ 0061; see also col. 18, ¶ 0109 – col. 19, ¶ 0113); wherein said luminance

components, subjected to said image altering process, and color-difference components

of said video signals are combined (Col. 8, ¶ 0048 – col. 11, ¶ 0061; see also col. 18, ¶

0109 – col. 19, ¶ 0113; see also col. 6, ¶), so that video signals for an illustrational

image in which the outlines of image features are made bold (Col. 9, ¶ 0055 – col. 10, ¶

0059), and the number of colors is reduced with respect to the number of colors in said

original color image, are generated (Col. 9, ¶ 0055 – col. 10, ¶ 0059) (Col. 6, ¶ 0036 –

col. 12, ¶ 0073; see also col. 18, ¶ 0109 – col. 19, ¶ 0113).  Yamazoe et al. further

discloses said image altering process includes filtering processes in which a low-pass

filter and an edge-enhancement filter are used to filter said luminance components, and

a gradation-reduction process (to reduce the amount of tone levels) that reduces the

steps of said luminance components (Col. 8, ¶ 0048 – col. 11, ¶ 0061; see also col. 18,

¶ 0109 – col. 19, ¶ 0113).

Yamazoe et al. does not explicitly disclose that said filtering processes are

recursively performed a plurality of times.

However, Tsuchiya et al. discloses the concept of applying a filtering process to

image data, in which a low-pass filter and an edge-enhancement filter are used to filter

the image signal, wherein said filtering process is performed recursively so as to

perform an smoothing processing in which only a specific frequency component is

selectively left in such a smoothed image, and the deterioration of the image quality of

the output image can effectively be evaded in that degree; and to generate the

smoothed image that is sufficiently smoothed in a wide frequency band while the edge

information thereof is preserved (Page 6, ¶ 0088-0096; Tsuchiya et al. discloses

providing the image signal to a filtering circuit (See fig. 8), wherein the filtering circuit

comprising a low pass (Fig. 8: 11) filter and a plurality of improved filters (see fig. 8) that

would apply a repeatedly filtering to the image signal to smooth the image while

preserving the edges. This teaches the concept of recursively filtering the image data

for a plurality of times in which the filtering process comprises low-pass filtering and

edge enhancement filtering).

Therefore, taking the combined teaching of Yamazoe et al. in view of Tsuchiya et

al. as a whole, it would have been obvious to one of an ordinary skill in the art at the

time the invention was made to apply the concept of recursively filtering the image data

in which the filtering process comprises low-pass filtering and edge enhancement filtering as taught in Tsuchiya et al. to modify the teaching of Yamazoe et al. to perform recursively said filtering process for a plurality of times. The motivation to so would have been to perform an smoothing processing in which only a specific frequency component is selectively left in such a smoothed image, and the deterioration of the image quality of the output image can effectively be evaded in that degree; and to generate the smoothed image that is sufficiently smoothed in a wide frequency band while the edge information thereof is preserved as suggested by Tsuchiya et al. (Page 6, ¶ 0088-009).

**Regarding claim 2**, Yamazoe et al. discloses said image altering process includes a gradation-reduction process (to reduce the amount of tone levels) that reduces the steps of said luminance components (Col. 8, ¶ 0048 – col. 11, ¶ 0061; see also col. 18, ¶ 0109 – col. 19, ¶ 0113).

**Regarding claim 8**, claim 8 is a method claim of the apparatus in claim 1. Limitations have been discussed and analyzed in claim 1.

**Regarding claim 9**, claim 9 requires a program product stored in a computer readable medium that when executed by the computer would perform an image processing as in claim 1. Limitations are discussed and analyzed in claim 1. Furthermore, Yamazoe et al. discloses the image processing as a program stored in a computer memory (Col. 4, ¶ 0023-0028) that when executed performs the same operations as in claim 1.

**6.      Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable**

**over Yamazoe et al., EP 1014688 A2 in view of Tsuchiya et al., US 2002/0047911**

**A1 as applied to claim 1 above and further in view of Greggain, US Patent**

**5,602,599.**

**Regarding claim 4**, the combined teaching of Yamazoe et al. in view of

Tsuchiya et al. fails to teach that said image-processing unit further carries out a

resolution reduction process that reduces the number of pixels in said original color

image before carrying out said filtering processes and a resolution restoring process

that restores the number of pixels to said number of pixels in said original color image

after carrying out said filtering processes.

However, Greggain discloses filtering device (Figure 1) which filters an original

image (column 2, lines 6-8; input digital image stored in image frame store 1 provides

an original image), comprising: a reducing processor (resizing apparatus 3; column 2,

lines 8-16) that reduces the number of pixels forming said original image (1) so as to

generate a low-resolution image (image with reduced number of pixels results into a low

resolution image); a filtering processor (column 2, lines 17-33; by removing spatial

frequency from the reduced image provides filtering) that filters pixel data of pixels

forming said low- resolution image so as to transform said low-resolution image into a

filtered image; and an image restoring processor (resized apparatus 5 corresponds to

an image restoring processor; column 2, lines 19-33) that restores the number of pixels

forming said filtered image to the number of pixels forming said original image so as to

generate a restored image (Col. 2, line 16 – col. 4, line 28).

Therefore, taking the combined teaching of Yamazoe et al. in view of Tsuchiya et al. and further in view of Greggain as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yamazoe et al. and Tsuchiya et al. by having said image processing unit carrying out a resolution reduction process that reduces the number of pixels in said original color image before carrying out said filtering processes and a resolution restoring process that restores the number of pixels to said number of pixels in said original color image after carrying out said filtering processes. The motivation to do so would have been to increase the speed of the filtering process by applying the filters to a reduced image while taking advantage of the inherent accurate filtering that would reduce the aliasing and image distortion as suggested by Greggain (Col. 1, lines 45-55).

**Regarding claim 5**, the combined teaching of Yamazoe et al. in view of Tsuchiya et al. and further in view of Greggain as discussed and analyzed in claim 4 would result in the limitations as claimed since the filtering process that includes the low-pass filter and an edge-enhancement filter are used to filter said luminance components, and a gradation-reduction process that reduces the steps of said luminance components (See Yamazoe et al, col. 8, ¶ 0048 – col. 11, ¶ 0061; see also col. 18, ¶ 0109 – col. 19, ¶ 0113) would be performed before restoring the size of the image (Greggain, col. 2, line 16 – col. 4, line 28). Grounds for rejecting claim 4 apply here.

7.      **Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazoe et al., EP 1014688 A2 and Tsuchiya et al., US 2002/0047911 A1 in view of Greggain, US Patent 5,602,599 and further in view of Isono et al., US Patent 6,873,348 B1.**

**Regarding claim 6**, the combined teaching of Yamazoe et al. in view of Tsuchiya et al. and further in view of Greggain fails to teach that the image-processing unit carries out said resolution restoring process before carrying out said gradation-reduction process.

However, Isono et al. discloses an image processing method wherein the image data is analyzed before performing enlargement in order to correct the gradation said image data after performing said enlargement with the purpose of correcting blurriness of the enlarged image data that would result as a result of said enlargement (Col. 18, line 29 – col. 19, line27).

Therefore, taking the combined teaching of Yamazoe et al. and Tsuchiya et al. in view of Greggain in view of Isono et al as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yamazoe et al, Tsuchiya et al. and Greggain by having the image-processing unit carrying out said resolution restoring process before carrying out said gradation-reduction process. The motivation to do so would have been to improve the image-processing device by allowing correction of any blurriness obtained as a result of enlarging the image, thus improving the image quality of said image.

### *Allowable Subject Matter*

8.      **Claim 7** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9.      The following is a statement of reasons for the indication of allowable subject matter:

**Regarding claim 7**, the main reason for indication of allowable subject matter is because the prior art fails to teach or reasonably suggest, that said image-processing unit carries out said low-pass filtering process, said edge-enhancement filtering process, and said gradation-reduction process in this order in a first mode, and wherein said image-processing unit carries out a resolution reduction process that reduces the number of pixels in said original color image, said low-pass filtering process, said edge-enhancement filtering process, said gradation-reduction process, and a resolution restoring process that restores the number of pixels to said number of pixels in said original color image, in this order in a second mode, including all the limitations in claims 1 and 2.

### *Conclusion*

10.     Because new grounds of rejections have been introduced to reject claim 1 (with limitations of previously presented claim 3), this Office Action is made **NON-FINAL.**

## *Contact*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernández whose telephone number is (571)272-7311. The examiner can normally be reached on 9:00 A.M. to 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on (571) 272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nelson D. Hernández
Examiner
Art Unit 2622

NDHH
May 9, 2008

/Lin  Ye/
Supervisory Patent Examiner, Art Unit 2622